

- GENERAL NOTES**
- ALL NOTES INCLUDED HEREIN ARE MADE PART OF EACH AND ALL MECHANICAL, ELECTRICAL AND PLUMBING SECTIONS OF WORK.
- REFER TO LANDLORD'S SPECIFICATIONS AND TENANT DESIGN CRITERIA FOR NECESSARY INFORMATION AND COORDINATION WITH OTHER TRADES.
  - THE ABBREVIATION L5D&C WHEREVER IT APPEARS IN THE DRAWINGS, SHALL REFER TO "LIMITED STORE DESIGN AND CONSTRUCTION", ANY REFERENCE TO TENANT, BRAND SPECIFIC (EXPRESS, ETC.) OR FURNISHED BY ANY OF THE ABOVE REFERS TO L5D&C.
  - ANY DISCREPANCY BETWEEN L5D&C DRAWINGS AND TENANT CRITERIA, L5D&C DRAWINGS SHALL TAKE PRECEDENCE.
  - THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC TO THE EXTENT THAT ALL INSTALLED ITEMS AND LOCATIONS ARE NOT EXACTLY PLACED AND ARE NOT TO BE SCALED.
  - EACH CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELATED PERMITS AND INSPECTION FEES.
  - BEFORE COMMENCING ANY WORK, CONTRACTORS SHALL REVIEW THE LATEST NATIONAL, STATE AND LOCAL CODE REQUIREMENTS INCLUDING LANDLORD CRITERIA AND PERFORM THE WORK IN STRICT ACCORDANCE WITH THESE. IN CASE OF CONFLICT THE STRICTER REQUIREMENTS WILL PREVAIL.
  - NO ADDITIONAL COMPENSATION SHALL BE MADE FOR ANY CHANGE ORDERS DUE TO CONTRACTOR'S FAILURE TO VISIT THE JOBSITE AND/OR PREDETERMINE ALL EXISTING CONDITIONS BEFORE SUBMITTING HIS BID.
  - A. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. FOR THE PURPOSE OF SURVEYING EXISTING CONDITIONS, WHICH MAY AFFECT THE WORK TO BE DONE UNDER THIS SECTION, ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE GENERAL CONTRACTOR, L5D&C OR THE LANDLORD'S FIELD REPRESENTATIVE FOR CLARIFICATION.
  - B. AFTER BID, ANY QUESTIONS RELATING TO SPECIFIC M, E, OR P ISSUES ARE TO BE DIRECTED AS RFI'S THROUGH THE L5D&C PROJECT MANAGER.
  - C. SHOULD THE SPACE HAVE BEEN INACCESSIBLE FOR INSPECTION CONTRACTOR MUST INDICATE SO ON HIS BID.
  - THE GENERAL CONTRACTOR'S FIRE SPRINKLER SUBCONTRACTOR SHALL DESIGN AND INSTALL FIRE SPRINKLER SYSTEM CONFORMING TO LANDLORD'S CRITERIA, TENANT'S REQUIREMENTS AND PER LOCAL CODES AND NFPA STANDARDS.
  - THE CONTRACTOR, WITHIN FIFTEEN (15) DAYS OF THE AWARD OF THE CONTRACT, SHALL SUBMIT TO THE OWNER SIX (6) COPIES OF A COMPLETE LIST OF MATERIALS AND EQUIPMENT PROPOSED FOR THE JOB INCLUDING ALL DATA, PART NUMBERS, RATING CAPACITY, SIZE, DIMENSIONS, ELECTRICAL DATA, GRADE, MANUFACTURER, AND ANY OTHER DESCRIPTIVE DATA FOR ALL EQUIPMENT OR SYSTEMS THAT DEVIATE FROM SPECIFIED ITEMS. ANY DELAYS OR COSTS DUE TO THESE DEVIATIONS, WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF ALL UNUSED OR ABANDONED MATERIALS AND EQUIPMENT, AND ITS REMOVAL OFF THE LANDLORD'S PREMISES.
  - OWNER RESERVES THE RIGHT TO HAVE CONSTRUCTION REVIEWED BY AN OUTSIDE CONSULTANT PRIOR TO ACCEPTANCE OF THE PROJECT.
  - EACH CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP RELATED TO HIS WORK FOR A MINIMUM PERIOD OF ONE YEAR FROM THE DATE WHICH THE OWNER ACCEPTS THE PROJECT. THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER OR TENANT SHALL CORRECT ANY DEFECTS IN MATERIALS OR WORKMANSHIP DURING THIS GUARANTEE PERIOD.
  - EACH CONTRACTOR SHALL BE RESPONSIBLE AND ENSURE A CLEAN INSTALLATION ESPECIALLY IN EXPOSED CEILING AREAS. THE FINAL APPROVAL OF THIS WORK WILL BE ISSUED BY L5D&C PROJECT MANAGER.
  - PROVIDE ONE SETS OF "AS-BUILT" DRAWINGS INTO PLANE TUBE AND ONE BOUND SETS OF ALL OPERATIONS MANUALS, DIAGRAMS, SERVICE CONTRACTS AND GUARANTEES IN BINDER TO STORE MANAGER. A REPORT PREPARED IN ACCORDANCE WITH MECHANICAL SPECIFICATIONS BY AN INDEPENDENT AIR BALANCE CONTRACTOR, HIRED BY GC, MUST BE INCLUDED IN THE CLOSE-OUT PACKAGE.

**HVAC GENERAL NOTES**

- THESE PLANS MAY BE USED FOR CONSTRUCTION ONLY AFTER APPROVAL IS OBTAINED FROM THE BUILDING DEPARTMENT MECHANICAL PLAN CHECK DIVISION AND THAT DIVISION'S STAMPED APPROVAL AND AUTHORIZED SIGNATURE APPEAR ON THE PLANS.
- COORDINATE ALL WORK WITH ALL TRADES INCLUDED BUT NOT LIMITED TO ELECTRICAL, PLUMBING, FIRE PROTECTION AND STRUCTURAL CONTRACTORS. INSTALL ALL WORK TO CLEAR NEW AND EXISTING ARCHITECTURAL AND STRUCTURAL MEMBERS. NO ITEM SUCH AS PIPE, DUCT, ETC. IS TO COME IN CONTACT WITH ANY EQUIPMENT.
- REFER TO ARCHITECTURAL DRAWINGS FOR DEMOLITION WORK.
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FIXTURE LOCATION.
- CONTRACTOR SHALL PROVIDE CUT SHEETS TO L5D&C FOR ALL EQUIPMENT AND DEVICES FURNISHED BY THE CONTRACTOR THAT DEViate FROM SPECIFIED ITEM FOR REVIEW AND APPROVAL PRIOR TO THE PURCHASE OF ANY SUCH EQUIPMENT OR DEVICES.
- HVAC CONTRACTOR IS RESPONSIBLE TO INQUIRE WITH THE LANDLORD'S REPRESENTATIVE ON ANY SMOKE EVACUATION SYSTEM IN USE AT THE MALL AT THE TIME OF THE BID. IF THE SAID SYSTEM IS NOT ADEQUATELY DESCRIBED ON THE DRAWINGS, THE MECHANICAL CONTRACTOR IS RESPONSIBLE TO INFORM THE GENERAL CONTRACTOR AND INCLUDE THE COST AS A SEPARATE LINE ITEM IN THE BID. NO ADDITIONAL MONEYS SHALL BE AWARDED FOR TIE-IN REQUIREMENTS TO A LANDLORD'S SMOKE EVACUATION SYSTEM THAT IS IN EXISTENCE AT THE TIME OF THE BID, WITHOUT HAVING IDENTIFIED A SEPARATE LINE ITEM FOR THE SMOKE EVACUATION SYSTEM AT THE TIME OF THE BID.
- ACCESS TO ALL COMPONENTS AND EQUIPMENT MUST BE PROVIDED TO MEET CODE AND SERVICE/MAINTENANCE EASE.
- PRIOR TO STARTUP OF HVAC EQUIPMENT, MECHANICAL CONTRACTOR WILL CONFIRM WITH ONE OF THE LISTED HVAC MANUFACTURER REPRESENTATIVES THAT CORRECT POWER FOR EQUIPMENT HAS BEEN PROVIDED TO L5D&C PROVIDED HVAC UNITS AND HAS BEEN TURNED ON FOR A MINIMUM OF 24 HOURS. L5D&C RESERVES THE RIGHT TO CHECK CONSTRUCTION COMPLIANCE WITH PLANS AND SPECIFICATIONS, SHOULD THE OWNER FIND CORRECTIVE WORK TO BE NECESSARY, HE WILL NOTIFY CONTRACTOR OF SUCH WORK IN WRITING AND EXPECT COMPLIANCE PERFORMED WITH DUE DILIGENCE. IF ANY CORRECTIVE WORK IS DEEMED TO BE NECESSARY, THE COST OF REINSPECTIONS WILL BE BORNE BY THE CONTRACTOR. THE MECHANICAL CONTRACTOR WILL THEN ENSURE THAT THE EQUIPMENT IS POWERED FOR A MINIMUM OF 24 HRS BEFORE START-UP.
- IF WORK IS REQUIRED BY L5D&C IN ORDER TO IMPROVE, CHANGE OR CORRECT AIR CONDITIONING OPERATIONAL CONDITIONS DUE TO: PART MALFUNCTION, WARRANTY OR OTHER INABILITY TO PROVIDE THE COMFORT CONDITIONS REQUIRED BY THE STORE, CONTRACTOR SHALL BE DIRECTED BY L5D&C TO ADDRESS THIS WORK IN A TIMELY MANNER. IF IT BECOMES EVIDENT THAT THE CONTRACTOR CANNOT ACCOMPLISH THE TASK, THEN AFTER 72 HOURS OF WRITTEN NOTICE THE OWNER MAY, AT HIS DISCRETION, TAKE OVER SUCH WORK AND BACK CHARGE THE CONTRACTOR FOR ANY CORRECTIVE WORK THAT WAS REQUIRED DUE TO LACK OF PERFORMANCE, WORKMANSHIP AND/OR ADHERENCE TO PLANS AND SPECIFICATIONS.
- UPON COMPLETION OF THE WORK, CONTRACTOR SHALL VERIFY THE PROPER WORKING ORDER OF THE SYSTEM(S) AND MAKE ANY ADJUSTMENTS AS REQUIRED.
- PROVIDE FILTER CHANGES THROUGHOUT CONSTRUCTION AS REQUIRED FOR ALL HVAC EQUIPMENT. PROVIDE FILTER CHANGES AT LEAST TWICE MONTHLY ONCE STARTED. PRIOR TO TEST AND BALANCE, AND LASTLY, PRIOR TO MERCHANTING. ANY EQUIPMENT OR DUCTWORK THAT BECOMES SOILED DUE TO A LACK OF FILTER CHANGES, AS DETERMINED SOLELY BY THE L5D&C PROJECT MANAGER, SHALL BE CORRECTED ON BEHALF OF THE CONTRACTOR AND CHARGES BILLED TO THE CONTRACTOR.
- NOTES TO EQUIPMENT SCHEDULES USE THE WORDS "FURNISH" AND "PROVIDE", WHERE THE WORD "FURNISH" IS USED, SOME FIELD INSTALLATION IS REQUIRED BY THE CONTRACTOR, WHERE THE WORD "PROVIDE" IS USED, NO FIELD INSTALLATION IS REQUIRED AS THE DEVICES OR ACCESSORIES ARE FURNISHED AND INSTALLED BY THE MANUFACTURER AS PART OF THE EQUIPMENT WHEN SHIPPED.
- UNLESS OTHERWISE SPECIFIED, CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, MATERIAL, LABOR AND SUPERVISION NECESSARY TO COMPLETE THE HEATING, VENTILATING AND AIR CONDITIONING WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARDS AS OUTLINED HEREIN. SEE RESPONSIBILITY SCHEDULE ON SHEET M04.01.
- MECHANICAL CONTRACTOR SHALL FIELD MEASURE EXISTING ROOF CURB(S) FOR CURB ADAPTER(S), WHERE APPLICABLE, AND SHALL SUPPLY DIMENSIONS TO L5D&C HVAC SUPPLIER PRIOR TO START OF CONSTRUCTION.
- ALL HEATING VENTILATING AND AIR CONDITIONING EQUIPMENT SHALL BE CLEARLY IDENTIFIED WITH TENANT'S NAME, SPACE NUMBER AND UNIT DESIGNATION AND SHALL BE STENOILED IN 4" HIGH BLACK LETTERS.
- FURNISH AND INSTALL ALL NEW DUCTWORK INCLUDING INSTALLATION OF OWNER SUPPLIED PLENUM BOOTS, SUPPLY AIR DIFFUSERS, AND RETURN AIR GRILLES. (SEE AIR DEVICE SCHEDULE ON THIS SHEET).
- A. ALL MATERIAL SHALL BE NEW AND OF COMMERCIAL GRADE AND BEAR UNDERWRITER'S LABORATORY AND UNION LABELS WHERE SUCH LABELING APPLIES.
- B. ALL PLENUMS SHALL BE FABRICATED FROM GALVANIZED SHEET METAL OF THE APPROPRIATE GAUGE AND BE INSULATED WITH A MINIMUM OF 1" THICK, 0.75 LB./CU.FT. DENSITY FIBERGLASS INSULATION WITH ALUMINUM FOIL BACKED VAPOR BARRIER.
- C. WHERE DESIGNATED, BRANCHES FROM MAIN LOW VELOCITY TRUNK DUCTWORK SHALL BE FURNISHED WITH SPLITTERS, DAMPERS OR SIMILAR BALANCING DEVICES IN ACCORDANCE WITH THE STANDARDS OF SMACNA.
- D. ALL DUCTS FOR FINAL CONNECTION TO DIFFUSERS SHALL BE CLASS 1. UL LISTED (SL 181) FLEXIBLE AIR DUCT NOT TO EXCEED 4'-0" IN LENGTH (THERMAFLEX, GLASFLEX, OR APPROVED EQUAL).
- E. SUPPLY AND RETURN DUCTWORK SHALL BE LINED AND WITH CODE COMPLYING BLANKET INSULATION. ACOUSTICAL LINER MAY BE PROVIDED. ALL MATERIALS SHALL COMPLY WITH N.F.P.A. 90A AND 90B. SEE SPECIFICATIONS ON SHEET M01.01.
- F. HANGER WIRES, DUCT STRAPS, FASTENING DEVICES, ETC. SHALL BE FASTENED TO THE STEEL JOISTS AND/OR BEAMS ABOVE. DO NOT ATTACH ANY SUCH ITEMS DIRECTLY TO FLOOR SLABS, PIPING, OTHER DUCTWORK, ELECTRICAL CONDUITS OR THE ROOF DECK ABOVE.
- G. ADDITIONAL FIRE DAMPERS SHOULD BE INSTALLED AS REQUIRED BY ANY APPLICABLE CODES AND/OR JURISDICTIONAL AUTHORITIES.
- SEAL AROUND PIPES AND DUCTS PENETRATING FIRE SEPARATIONS WITH LISTED AND APPROVED FIRE SEAL MATERIAL. ONLY LISTED AND APPROVED SEALANTS AND METHODS FOR THE SPECIFIC USE WILL BE PERMITTED.
- MECHANICAL CONTRACTOR SHALL INSTALL TEMPERATURE SENSORS AND AS SHOWN ON THE PLAN (VERIFY LOCAL CODES. IF PLAN LOCATION IS NOT ACCEPTABLE, IMMEDIATELY CONTACT L5D&C PROJECT MANAGER FOR DIRECTION.)
- UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL FULLY PRESSURE CHECK AND CHARGE ALL REFRIGERANT SYSTEMS (IF REQUIRED).
- THE CONTRACTOR SHALL ENGAGE THE SERVICES OF AN INDEPENDENT, AIR/WATER BALANCING COMPANY THAT IS A NEBB CERTIFIED CONTRACTOR OR HAS AN AABC CERTIFIED TEST & BALANCE ENGINEER. THIS COMPANY SHALL PERFORM THE BALANCING OF AIR/WATER SYSTEM(S) AND MAKE ANY REQUIRED ADJUSTMENTS TO ENSURE PROPER WORKING ORDER. UPON COMPLETION, THE BALANCING COMPANY SHALL PROVIDE A COMPLETE SYSTEM REPORT.

**GRAINGER NATIONAL ACCOUNT INFORMATION**

COORDINATE WITH L5D&C PROJECT MANAGER FOR MORE INFORMATION.

**HVAC EQUIPMENT COMMISSIONING**

DETAILED HVAC COMMISSIONING INFORMATION IS INCLUDED IN THE L5D&C SITE MANUAL PROVIDED TO THE CONTRACTOR AT THE START OF THE PROJECT.

MANUFACTURER WILL CONTACT THE CONTRACTOR EARLY IN THE PROJECT TO SET PRELIMINARY DATES FOR HVAC INSPECTION, COMMISSIONING AND HVAC CONTROLS COMMISSIONING.

PRIOR TO HVAC INSPECTION / COMMISSIONING (TO BE COMPLETED BY MECHANICAL SUBCONTRACTOR)

- CONNECT AND BLEED CONDENSATE, DUCTWORK, NATURAL GAS, CHILLED WATER PIPING, AND/OR CONDENSER WATER PIPING.
- CHARGE HVAC SYSTEMS WITH REFRIGERANT FOLLOWING MANUFACTURERS' GUIDELINES AND INSTRUCTIONS. COLD WEATHER CONDITIONS REQUIRE SPECIFIC PROCESSES. CONTACT MANUFACTURER FOR TECHNICAL SUPPORT.
- CONNECT POWER TO THE HVAC EQUIPMENT FOR A MINIMUM OF 24 HOURS. NOTE: IN COLD WEATHER SITUATIONS, DO NOT OPERATE THE UNITS PRIOR TO COMMISSIONING!

HVAC EQUIPMENT SHOULD BE STARTED UP EARLY IN THE PROJECT. COORDINATE EARLY START UP OF EQUIPMENT WITH MANUFACTURER.

NOTE: THE GC MAY BE BACK CHARGED FOR ADDITIONAL AC SITE VISITS BEYOND THE FIRST THREE (3) NECESSARY TO DOCUMENT THE RESOLUTION OF THE HVAC PUNCHLIST ITEMS.

**HVAC COMMISSIONING PROCESS**

**VISIT 1: HVAC EQUIPMENT START UP**

- CONTRACTOR SHALL HAVE THE MECHANICAL AND ELECTRICAL SUBCONTRACTOR ON SITE DURING THE HVAC INSPECTION AND COMMISSIONING. BUDGET 5 HOURS FOR THE HVAC INSPECTION AND COMMISSIONING. (NOTE: THESE HOURS ARE TO BE USED FOR THE COMPLETION OF THE COMMISSIONING PROCESS ONLY. ADDITIONAL HOURS WILL NOT BE APPROVED FOR WORK THAT WAS IN SCOPE AND NOT COMPLETED PRIOR TO THE COMMISSIONING PROCESS.)
- CONTRACTOR TO COMPLETE AND EMAIL, OR FAX, THE HVAC EQUIPMENT START UP SURVEY TO MANUFACTURER PRIOR TO THE HVAC STARTUP.
- MANUFACTURER COORDINATES THE HVAC EQUIPMENT COMMISSIONING. CONTRACTOR IS RESPONSIBLE FOR COMMUNICATING SCHEDULE DATE CHANGES TO MANUFACTURER AND SUBCONTRACTORS.
- PROVIDED THERE ARE NO HVAC INSTALLATION ISSUES, SYSTEMS SHALL BE STARTED FOR TEMPORARY OPERATION ON LOCAL CONTROL.
- IF THERE ARE HVAC INSTALLATION PUNCHLIST ITEMS, THE GC MUST CORRECT THEM AND RESCHEDULE COMMISSIONING WITH MANUFACTURER.

**VISIT 2: HVAC CONTROLS COMMISSIONING**

THE CONTROLS COMMISSIONING IS PERFORMED BY THE MANUFACTURER IN CONJUNCTION WITH THE GENERAL CONTRACTOR AND THE MECHANICAL AND ELECTRICAL SUBCONTRACTORS. ALLOW FOR 4 HOURS FOR THE CONTROLS COMMISSIONING. (NOTE: THESE HOURS ARE TO BE USED FOR THE COMPLETION OF THE COMMISSIONING PROCESS ONLY. ADDITIONAL HOURS WILL NOT BE APPROVED FOR WORK THAT WAS IN SCOPE AND NOT COMPLETED PRIOR TO THE COMMISSIONING PROCESS.)

FOLLOW THE CONSTRUCTION DRAWINGS AND MANUFACTURER'S DETAILS AND DRAWINGS DURING THE INSTALLATION OF THE HVAC CONTROL EQUIPMENT.

- CONTRACTOR TO COMPLETE AND EMAIL, OR FAX, THE CONTROLS COMMISSIONING SURVEY TO MANUFACTURER PRIOR TO THE CONTROL COMMISSIONING.
- CONNECT THE HVAC CONTROLS TO AN OPERATIONAL ANALOG PHONE LINE OR ETHERNET CONNECTION TO ALLOW COMMUNICATION. IF NECESSARY, UTILIZE SITE FAX LINE TO CONNECT TO THE CONTROLS MODem IN THE JFS PANEL.
- CONTACT MANUFACTURERS AT THE SCHEDULED TIME FOR THE CONTROLS COMMISSIONING.
- PROVIDED THERE ARE NO OPEN ISSUES, VISIT 2 IS COMPLETE. IN THE EVENT THERE ARE OPEN ITEMS, THE GC MUST CORRECT THEM AND RESCHEDULE THE CONTROLS COMMISSIONING.

**VISIT 3: FINAL HVAC INSPECTION**

THIS VISIT IS TO DO A FINAL INSPECTION OF THE HVAC EQUIPMENT AND CONTROL INSTALLATION. THIS VISIT MUST TAKE PLACE PRIOR TO CONSTRUCTION COMPLETION.

THE FOLLOWING ITEMS MUST BE COMPLETED PRIOR TO THE INSPECTION:

- HVAC SYSTEM INSTALLATION IS COMPLETE - NO OPEN PUNCHLIST ITEMS EXCEPT FOR POSSIBLY THE PERMANENT PHONE LINE.
- AIR BALANCE IS COMPLETE. NOTE: AIR BALANCE IS IN THE CONTRACTOR'S SCOPE OF WORK.

THE GC MUST COMPLETE TRANE'S SITE VISIT #3 SURVEY PRIOR TO THE VISIT BEING SCHEDULED.

THE CONTRACTOR IS RESPONSIBLE FOR HAVING THE MECHANICAL SUBCONTRACTOR AND THE ELECTRICAL SUBCONTRACTOR ON SITE DURING THE FINAL INSPECTION. BUDGET 4 HOURS FOR THE FINAL INSPECTION.

- THE CONTRACTOR IS RESPONSIBLE FOR COMMUNICATING SCHEDULE DATE CHANGES FOR THE FINAL INSPECTION.
- FILTERS ARE TO BE REPLACED DURING THIS VISIT. FILTERS ARE TO BE PROVIDED BY THE CONTRACTOR AND SHALL BE ON SITE WHEN THE TRANE TECHNICIAN ARRIVES.
- WHEN COMPLETE AND ALL OPEN CONTRACTOR HVAC ISSUES ARE RESOLVED A CONTROL NUMBER IS ISSUED BY THE MANUFACTURER. IT IS RECORDED INSIDE THE CONTROL PANEL DOOR IN THE JFS ELECTRICAL PANEL AND ON THE FINAL VISIT CHECK LIST.
- IN THE EVENT THERE ARE OPEN ITEMS, THE CONTRACTOR MUST CORRECT THEM AND RESCHEDULE THE FINAL INSPECTION WITH MANUFACTURER. GC IS RESPONSIBLE FOR REPLACEMENT OF SHEAVES, PULLEYS, AND BELLS, IF NEEDED.
- THE HVAC CONTROL NUMBER WILL BE ISSUED AT THE END OF THE VISIT PROVIDED THERE ARE NO UNRESOLVED HVAC PUNCHLIST ITEMS.

THE TRANE TECHNICIAN WILL WRITE THE HVAC CONTROL NUMBER ON THE STICKER INSIDE THE WR CONTROLS PANEL (JFS PANEL) AND ON THE FINAL VISIT CHECK LIST.

**NATIONAL ACCOUNTS HVAC SUPPLIER GENERAL NOTES**

HVAC EQUIPMENT NOTED HAS BEEN PREPURCHASED BY LIMITED STORE DESIGN & CONSTRUCTION. WITHIN THE FIRST WEEK OF CONSTRUCTION, THE GENERAL CONTRACTOR OR THEIR MECHANICAL SUBCONTRACTOR SHALL NOTIFY SUPPLIER VIA EMAIL.

THE EMAIL SHALL STATE THE PHONE NUMBER, EMAIL ADDRESS AND DELIVERY ADDRESS OF THE CONTACT PERSON RESPONSIBLE FOR SCHEDULING AND RECEIVING THE HVAC EQUIPMENT AND ACCESSORIES. EQUIPMENT AND ACCESSORIES ARE TO BE SHIPPED BY ANY SPECIAL SHIPPING INSTRUCTIONS REQUIRED OR REQUESTED. ALLOW A MINIMUM OF TWO WEEKS AFTER CONSTRUCTION STARTS FOR DELIVERY UNLESS SPECIAL ARRANGEMENTS ARE MADE PRIOR TO THE START OF CONSTRUCTION.

GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL SHIPPING COST INCURRED IF DELIVERY IS REQUIRED PRIOR TO THE STANDARD TWO WEEKS SCHEDULED.

IF THIS INFORMATION IS NOT SENT TO NATIONAL ACCOUNT SUPPLIER, THEN THE EQUIPMENT AND ACCESSORIES WILL BE SHIPPED IN ACCORDANCE WITH THE PURCHASE ORDER DATE AND INSTRUCTIONS ISSUED BY L5D&C AND THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR UNLOADING AND STORAGE OF EQUIPMENT UNTIL SUCH TIME AS REQUIRED FOR INSTALLATION ON PROJECT.

IF OWNER'S REPRESENTATIVE IS PERFORMING START UP, THEN GC AND/OR MECHANICAL CONTRACTOR MUST COORDINATE WITH MANUFACTURER REP. 2 WEEKS PRIOR TO CONSTRUCTION END DATE.

**TRANE CONTACT INFORMATION**

JODY SOWERS  
TRANE TECHNICAL SUPPORT, PRIMARY  
EMAIL: JSOWERS@TRANE.COM  
PHONE NO: 866.415.2499

ROLLAND SCOTT  
SUPPORT, SECONDARY  
EMAIL: ROLLAND.SCOTT@TRANE.COM  
PHONE NO: 866.415.2499

JOHN D'AGOSTINO  
EQUIPMENT SUPPORT  
EMAIL: JOHN.D'AGOSTINO@TRANE.COM  
PHONE NO: 866.415.2499

SCOTT DAVIS  
PROJECT MANAGER AND  
HVAC COMMISSIONING  
EMAIL: SCOTT.DAVIS@TRANE.COM  
PHONE NO: 866.415.2499

**ABBREVIATIONS - MECHANICAL**

AABC	AMERICAN AIR BALANCE COUNCIL	EQUIV	EQUIVALENT	OBD	OPPOSED BLADE DAMPER
A/C	AIR CONDITIONING UNIT	ESP	EXTERNAL STATIC PRESSURE	OD	OUTSIDE DIMENSION OR DIAMETER
ABV	ABOVE	CHW	ELECTRIC WATER COOLER	OPNG	OPENING
AD	ACCESS DOOR	EXH	EXHAUST	OA	OUTDOOR AIR
AFD	APPROVED FIRE DAMPER	F	FAHREWEIT	P	PUMP
AFI	ABOVE FINISH FLOOR	FCU	FAN COIL UNIT	PD	PRESSURE DROP
AHU	AIR HANDLING UNIT	FLA	FULL LOAD AMPS	PLBG	PLUMBING
AP	ACCESS PANEL	FLEX	FLEXIBLE	PRV	PRESSURE REDUCING VALVE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS	PFM	FEET PER MINUTE	PSI	POUNDS PER SQUARE INCH
		FPF	FEET PER SECOND	RA	RETURN AIR
BDD	BACK DRAFT DAMPERS			RAG	RETURN AIR GRILLE
BEL	BELOW	G	GAS	RAR	RETURN AIR REGISTER
BHP	BRAKE HORSEPOWER	GAL	GALLONS	RG	RELATIVE HUMIDITY
BLDG	BUILDING	GALV	GALVANIZED	RH	RELATIVE HUMIDITY
BOD	BOTTOM OF DUCT	GC	GENERAL CONTRACTOR	RPM	REVOLUTIONS PER MINUTE
BOP	BOTTOM OF PIPE	GPW	GALLONS PER MINUTE		
BTUH	BRITISH THERMAL UNIT PER HOUR	HD	HEAD	SA	SUPPLY AIR
		HP	HORSEPOWER	SAG	SUPPLY AIR GRILLE
CAP	CAPACITY	HTR	HEATER	SAR	SUPPLY AIR REGISTER
CD	CEILING DIFFUSER OR CONDENSATE DRAIN	HVAC	HEATING VENTILATING AND AIR CONDITIONING	SCH	SCHEDULE
CFM	CUBIC FEET PER MINUTE	HWR	HOT WATER RETURN	SENS	SENSIBLE
CHW	CHILLED WATER RETURN	HWS	HOT WATER SUPPLY	SF	SUPPLY FAN, SQUARE FOOT
CHWS	CHILLED WATER SUPPLY	ID	INSIDE DIAMETER	SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
CLG	CEILING, COOLING	IN	INCH	SOV	SHUT-OFF VALVE
CO2	CARBON DIOXIDE	IP	INCHWATT	SP	STATIC PRESSURE
CON	CONNECTION OR CONNECTOR	IS	INCH	SQ	SQUARE
CONT	CONTINUOUS	KW	KILOWATT	SQ FT	SQUARE FEET
CONTR	CONTRACTOR	LL	LANDLORD	SS	STAINLESS STEEL
CNR	CONDENSER WATER RETURN	LL	LONG		
CWS	CONDENSER WATER SUPPLY	LB	POUND	TEMP	TEMPERATURE
		LF	LINEAR FEET	TG	TRANSFER GRILLE
DB	DRY BULB, DECIBEL	LT	LINEAR DIFFUSER	TSP	TOTAL STATIC PRESSURE
DET	DETAIL	LN	LINEAR DIFFUSER	TSTAT	THERMOSTAT
DIA	DIAMETER	MAX	MAXIMUM	TYP	TYPICAL
DIM	DIMENSION	MBH	THOUSAND BTU PER HOUR	UC	UNDERCUT
DISCH	DISCHARGE	MCA	MINIMUM CIRCUIT AMPACITY	UH	UNIT HEATER
DL	DOOR LOUVER	MOT	MOTORIZED DAMPER	UN	UNLESS OTHERWISE NOTED
DN	DOWN	MECH	MECHANICAL	UTR	UP THRU ROOF
DTR	DOWN THRU ROOF	MFR	MANUFACTURER		
DWG	DRAWING	MOCP	MAXIMUM OVER CURRENT PROTECTION	VAV	VARIABLE AIR VOLUME
EA	EXHAUST AIR	MTD	MOUNTED	VENT	VENTILATION, VENTILATOR
EAC	EXHAUST AIR GRILLE	MTR	MOTOR	VFD	VARIABLE FREQUENCY DRIVE
EAR	EXHAUST AIR REGISTER			VTR	VENT THRU ROOF
EAT	ENTERING AIR TEMPERATURE	NEBB	NATIONAL ENVIRONMENTAL BALANCING BUREAU	W	WATT
EEL	ELECTRICAL CONTRACTOR	N.C.	NORMALLY CLOSED	WB	WET BULB
EE	ENERGY EFFICIENCY RATIO	N.I.C.	NOT IN CONTRACT	WCO	WALL CLEANOUT
EF	EXHAUST FAN	N.O.	NORMALLY OPEN	WG	WATER GAUGE
EFF	EFFICIENCY	N/A	NOT APPLICABLE	WT	WEIGHT
EG	EXHAUST GRILLE	NTS	NOT TO SCALE		
ELEC	ELECTRIC				
ELV	ELEVATION				
ENCL	ENCLOSURE				

NTS

00N-M0101-J00-NOTE

J

12/11/13

**ROOFTOP UNIT SCHEDULE (ELECTRIC HEAT)**

MARK (RTU-#)	1		
TRANE PACKAGE NUMBER	A18		
MODEL / EER	YH0240 / 11		
AIR FLOW (CFM)	6,750		
OA FLOW / MIN. OA FLOW (CFM)*	950 / 500		
AMBIENT OAT (F)	100		
EXT. S.P. (IN. WG.)	0.8		
DX COOLING COIL			
EAT (FDB/WB)	76.3 / 65.4		
TOTAL (BTU / HR)	230,230		
SENSIBLE (BTU / HR)	163,110		
ELECTRIC HEAT			
INPUT (WATTS)	73,250		
OUTPUT (BTU / HR)	203,000		
STAGES	2		
ELECTRICAL			
VOLTS/PH/Hz	480/3/60		
MOTOR (HP)	4.05		
MCA (AMPS)	52		
MOCP (AMPS)	52		
APPROX. WEIGHT (LBS)	2323		
ACCESSORIES	1-6,9,10		
NOTES	1-2		

- ACCESSORIES ("S" INDICATES STANDARD; "O" INDICATES OPTIONAL):**
- S-FACTORY PROVIDED DISCONNECT SWITCH.
  - S-FACTORY PROVIDED DUCT SMOKE DETECTOR IN RETURN AIR AND REMOTE TEST STATION, (MODEL SK451).
  - S-FACTORY PROVIDED SUPPLY AIR SENSOR.
  - S-FACTORY PROVIDED DRY BULB ECONOMIZER AND HOOD WITH BIRDSCREEN. SOME FIELD ASSEMBLY REQUIRED.
  - S-FACTORY PROVIDED NON-POWERED GFI CONVENIENCE OUTLET.
  - O-FACTORY PROVIDED POWER EXHAUST FOR RELIEF AIR. SOME FIELD ASSEMBLY REQUIRED.
  - O-FACTORY FURNISHED WITH DEHUMIDIFICATION (HOT GAS REHEAT) OPTION.
  - S-FACTORY PROVIDED COASTAL CONDENSER COIL AND EVAPORATOR COIL COATING.
  - O-HAIL GIARD.
  - O-FURNISHED WITH 24" HIGH FACTORY FABRICATED ROOF CURB.
  - O-CURB ADAPTER PROVIDED BY MECHANICAL CONTRACTOR.
  - O-SINGLE ZONE VAV

**NOTES:**

- REFER TO CONTROL WIRING SCHEMATICS FOR ANY FIELD INSTALLED CONTROL DEVICES NOT FACTORY INSTALLED.
- FIELD SET MINIMUM OUTSIDE AIR AS SPECIFIED ABOVE. OUTSIDE AIR DAMPER SHALL FULLY CLOSE ON UNIT SHUTDOWN.

\* MINIMUM OA FLOW IS THE AREA COMPONENT OF THE MINIMUM VENTILATION RATE BASED ON ASHRAE STANDARD 62.1-2007 FOR RETAIL SALES SPACE (0.12 CFM/SQFT), TABLE-1.

**FAN TERMINAL UNIT SCHEDULE**

MARK (FPVAV-#)	1	2
TRANE PACKAGE NUMBER	NS	NS
MODEL	VSEF400	VSEF400
FAN SIZE	0450	0450
INLET SIZE	14" DIA.	14" DIA.
MAXIMUM PRIMARY AIR FLOW (CFM)	975	1175
MINIMUM AIR FLOW (CFM)	320	320
FAN PERFORMANCE		
MAXIMUM AIR FLOW (CFM)	975	1175
EXTERNAL STATIC (IN W.C.)	0.5	0.5
FAN MOTOR HP	1/2	1/2
ELECTRIC HEAT		
POWER INPUT (WATTS)	-	7,000
HEAT OUTPUT (BTU/HR)	-	23,890
STAGES	-	2
ELECTRICAL		
VOLTS/PH/Hz	120/1/60	480/3/60
FAN MOTOR AMPS	5.5	5.5
ELECTRIC HEATER AMPS	-	8.4
MCA (AMPS)	6.9	17.38
MOCP (AMPS)	15	25
APPROX. WEIGHT (LBS)	86	86
ACCESSORIES	1-2	1-2
NOTES	1	1

- ACCESSORIES ("S" INDICATES STANDARD; "O" INDICATES OPTIONAL):**
- S-FACTORY PROVIDED DISCONNECT SWITCH.
  - S-FACTORY PROVIDED CONTROL TRANSFORMER.

**NOTES:**

**EXHAUST AND VENTILATION FAN SCHEDULE**

MARK (EF-#)	1
MANUFACTURER	LOREN COOK
MODEL	GEMINI GC-144
TYPE	CEILING MOUNTED
DRIVE TYPE	DIRECT
PERFORMANCE	
AIR FLOW (CFM)	120
EXT. STATIC (IN W.C.)	0.3
FAN SPEED (RPM)	1100
ELECTRICAL	
VOLTS/PH/Hz	120/1/60
FAN MOTOR WATTS	87.3
APPROX. WEIGHT (LBS)	15
SERVES	RESTROOM
ACCESSORIES	1
NOTES	1

- ACCESSORIES ("S" INDICATES STANDARD; "O" INDICATES OPTIONAL):**
- S-BACKDRAFT DAMPER, S-DISCONNECT SWITCH.

**NOTES:**

- INTERLOCK WITH LIGHTS.

**MECHANICAL EQUIPMENT SCHEDULES**

NTS

00N-M0101-F00-SCHD

F

02/18/14

**AIR DEVICE SCHEDULE**

NTS

42N-M0101-B01-SCHD

B

12/11/13

	SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
	ACCESS PANEL
	EXHAUST AIR REGISTER
	LINEAR DIFFUSER S=SUPPLY, R=RETURN
	NEW DUCTWORK
	EXISTING DUCTWORK TO REMAIN
	EXISTING DUCTWORK TO BE REMOVED
	FLEXIBLE AIR DUCT 4'-0" MAX.

NOTE: (N)=NEW, (R)=RELOCATED, (E)=EXISTING

**LEGEND & SYMBOLS**